

ABSTRACT

A process for the production of biological products by microorganisms comprising the steps of: selecting a microorganism that is capable of utilizing oxygen or an alternative oxidant source other than oxygen for cellular respiration; providing 5 a culture medium suitable for the growth of the microorganism, wherein the medium comprises at least one carbon source; inoculating the culture medium with a desired cellular concentration of the microorganism; aerating the culture medium with oxygen, wherein the process has a maximum oxygen supply rate to the culture medium; supplying the culture medium with an alternative oxidant source, other than oxygen, 10 such that when the cellular respiration requirements of the microorganisms within the culture medium is less than the maximum rate of oxygen supply to the culture medium, then the microorganisms will substantially utilize oxygen for cellular respiration, and when the oxygen requirements for cellular respiration of the microorganisms within the culture medium is greater than the maximum rate of oxygen supply to the culture 15 medium, then a portion of the microorganisms within the culture medium will utilize the alternative oxidant source for cellular respiration; maintaining the culture medium at a desired pH and temperature; and allowing the culture medium to incubate for a time sufficient to produce a desired quantity of a biological product. The invention also provides a process for increasing concentration of microorganisms in a defined culture 20 medium.